

### REMARKS

In the Final Office Action, the Examiner noted that claims 1-2, 4-9, 12-13, 15-18, and 20-24 are pending in the application and that claims 1-2, 4-5, 9, 17-18, 20-21, and 23 are rejected. The Examiner objected to claims 6-8, and indicated that claims 12-13, 15-16, 22, and 24 are allowed. By this response, claim 23 is cancelled. In view of the above amendments and the following discussion, Applicants submit that none of the claims now pending in the application are indefinite under the provisions of 35 U.S.C. §112 or obvious under the provisions of 35 U.S.C. § 103. Thus, Applicants believe that all of these claims are now in condition for allowance.

### I. REQUIREMENT OF CORRECTED DRAWINGS

The Examiner stated that corrected drawings are required to avoid abandonment of the application and that such requirement will not be held in abeyance. In response, Applicants submit herewith six (6) sheets of formal drawings.

### II. OBJECTIONS

The Examiner has objected to dependent claims 6-8 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Applicants thank the Examiner for indicating allowable subject matter but believe independent claim 1, from which each of these dependent claims depends, is allowable over the prior art of record for the reasons set forth below. Thus, Applicants contend that claims 6-8 should distinguish over the prior art of record since each claim depends from independent claim 1. As such, Applicants respectfully request that the objection to claims 6-8 be withdrawn.

### III. REJECTION OF CLAIM UNDER 35 U.S.C. §112

The Examiner rejected claim 23 as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention. Specifically, the Examiner noted that claim 23 is dependent upon cancelled claim 14. In response, Applicants have cancelled claim 23.

#### **IV. REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)**

The Examiner rejected claims 1-2, 4-5, 9, 17-18, and 20-21 as being unpatentable over Fan (United States Patent 6,449,406, issued September 10, 2002). The rejection is respectfully traversed.

More specifically, the Examiner conceded that Fan “does not appear to specifically disclose the adapting of beam steering parameters in response to an optical loss parameter.” (Final Office Action, p.6). The Examiner alleged, however, “it would involve only routine skill in the art to recognize that when a failure occurs, a repair or adjustment should be made to the MEMS mirrors [of Fan] to make the switch operational.” (Final Office Action, p. 6). The Examiner concluded that it would have been obvious to adjust the MEMS mirrors of Fan in response to a detected failure “in order to make the switch fully operational and have the switch operating at its desired peak efficiency.” (Final Office Action, p. 6). Applicants respectfully disagree.

Fan generally teaches a micromachined optomechanical switching cell. (See Fan, Abstract). In particular, Fan shows an architecture of a micro electro mechanical systems (MEMS) optical switch, where beamsplitters (1040, FIG. 10) are used to deflect a portion of optical beams to both an input photodetector array and an output photodetector array. (Fan, col. 10, lines 56-63; FIGs. 10A-C). Fan teaches a third photodetector array (1005, FIG. 10) disposed behind MEMS mirrors, the output of which can be used with the outputs of the input and output photodetector arrays to detect possible failures in the MEMS mirrors. (Fan, col. 11, lines 15-16). Fan does not describe any process or device for taking corrective measures in response to a MEMS mirror failure. (See Fan, col. 10, line 56 through col. 11, line 26; FIGs. 10A-C).

In view of the foregoing, Fan does not teach each and every element of Applicants' claim 1. Namely, Fan does not teach or suggest adapting beam steering parameters associated with a medium to reduce optical loss in response to an optical loss parameter determined using data provided by first and second imaging devices.

Specifically, Applicants' claim 1 positively recites:

A method, comprising:  
arranging a plurality of light beams according to a parallel configuration;

diverting a first portion of said parallel light beams to a first imaging device;  
propagating a remaining portion of said parallel light beams through a medium;  
diverting a first portion of the propagated parallel light beams to a second imaging device;  
determining an optical loss parameter using imaging data provided by said first and second imaging devices; and  
adapting beam steering parameters associated with the medium to reduce optical loss in response to the optical loss parameter.

(Emphasis added). While the device of Fan is capable of detecting a failed MEMS mirror, Fan does not teach or suggest adapting any parameters associated with the MEMS mirrors in order to reduce optical loss. Rather, Fan merely identifies a MEMS mirror failure. Fan is devoid of any discussion regarding a corrective action in response to an identified mirror failure.

The Examiner stated that it would have been obvious to one skilled in the art to “take some sort of action to correct the mirror failures when they are detected by the system disclosed by Fan et al.” (Final Office Action, p. 3). The Examiner then makes a leap from taking “some sort” of corrective action in response to an identified failure to adjusting the MEMS mirrors in response to an identified failure. Assuming, arguendo, that it is obvious to modify Fan to take a corrective action in response to an identified mirror failure. It does not follow, however, that it is obvious to take the particular corrective action of adjusting the MEMS mirrors. Rather, there are multiple conceivable corrective actions that may be employed, such as replacement of a malfunctioning MEMS mirror, none of which are disclosed in, or suggested by, Fan. As such, even if it is obvious to modify Fan to take corrective action in response to an identified failure, there is no teaching or suggestion of taking the particular corrective action of adjusting the MEMS mirrors of Fan.

Therefore, there is no suggestion or motivation to modify Fan for adapting beam steering parameters in response to an optical loss parameter, as recited by Applicants’ claim 1. Evidence of a suggestion or motivation to modify the prior art must go beyond “broad conclusory statements” to a “clear and particular” showing. Brown & Williamson Tobacco Corp. v. Philip Morris, Inc., 56 USPQ2d 1456, 1459 (Fed. Cir. 2000) (citing In

re Dembiczak, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999)). Moreover, "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 23 USPQ 2d 1780, 1783-84 (Fed Cir. 1992) (emphasis added). There is nothing in the cited prior art that suggests the desirability of taking the particular corrective action of adapting beam steering parameters in response to an optical loss parameter. Therefore, Applicants contend that the invention recited in claim 1 is patentable over Fan and, as such, fully satisfies the requirements of 35 U.S.C. §103(a).

Claim 17 recites a power monitoring apparatus having features similar to the the features of claim 1 emphasized above. Namely, claim 17 recites first and second steering devices for respectively providing first and second indicia that are sufficient to determine an optical loss parameter for adapting a steering device to reduce optical loss. Therefore, for the same reasons cited above, Applicants contend that claim 17 is also patentable over Fan and, as such, fully satisfies the requirements of 35 U.S.C. §103(a).

Claims 2, 4-5, 9, 18, and 20-21 depend, either directly or indirectly, from claims 1 and 17 and recite additional features therefor. Since Fan does not render obvious Applicants' invention as recited in claims 1 and 17, dependent claims 2, 4-5, 9, 18, and 20-21 are also nonobvious and are allowable.

## **V. ALLOWED CLAIMS**

Applicants thank the Examiner for indicating that claims 12-13, 15-16, 22, and 24 are allowable.

## **CONCLUSION**

Thus, Applicants submit that none of the claims presently in the application are indefinite under the provisions of 35 U.S.C. §112 or obvious under the provisions of 35 U.S.C. § 103. Consequently, Applicants believe that all these claims are presently in

condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the maintenance of any adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone either Mr. Robert M. Brush, Esq. or Mr. Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

1/21/04

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